WHAT IS CLAIMED IS:

1. A method for compressing packets, comprising:

receiving, at a first network device, a plurality of packets, each packet from a separate one of a group of media streams, each packet comprising a payload and a header;

generating a group packet, the group packet comprising:

a group identifier identifying the group of media streams; and

the payload of each of the packets; and

communicating the group packet to a second network device.

2. The method of Claim 1, wherein:

each of the media streams is synchronous; and

the method further comprises identifying the group of media streams by determining that the media streams in the group have the same periodicity.

3. The method of Claim 1, further comprising:

generating a group setup message, the group setup message comprising:

the group identifier; and

state information for each media stream in the group; and

communicating the group setup message to the second network device.

4. The method of Claim 3, wherein the state information enables the second network device to:

reconstruct the headers corresponding to the payloads in the group packet; and

reform the corresponding packets from the reconstructed headers and the corresponding payloads.

5. The method of Claim 4, wherein:

the packets are Internet protocol (IP) packets carried over User Datagram Protocol (UDP);

the method further comprises compressing each packet into a compressed UDP (cUDP) packet comprising the payload of each packet and a compressed header; and

the state information permits the second network device to reconstruct the compressed headers.

6. The method of Claim 1, further comprising multiplexing the group packet into a multiplexed packet with a plurality of other packets.

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7. A communication device, comprising:

a first interface operable to receive a plurality of packets, each packet from a separate one of a group of media streams, each packet comprising a payload and a header;

a grouping module operable to generate a group packet, the group packet comprising:

a group identifier identifying the group of media stream; and

the payload of each of the packets; and

a second interface operable to communicate the group packet for receipt by a remote device.

8. The communication device of Claim 7, wherein:

each of the media streams is synchronous; and

the grouping module is further operable to identify the group of media stream by determining that the media streams in the group have the same periodicity.

9. The communication device of Claim 7, wherein:

the grouping module is further operable to generate a group setup message, the group setup message comprising:

the group identifier; and

state information for each media stream in the group; and

the second interface is further operable to communicate the group setup message to the second network device.

10. The communication device of Claim 7, further comprising a multiplexer operable to multiplex the group packet into a multiplexed packet with a plurality of other packets.

11. Logic embodied in a computer readable medium operable to perform the steps of:

receiving, at a first network device, a plurality of packets, each packet from a separate one of a group of media streams, each packet comprising a payload and a header;

generating a group packet, the group packet comprising:

a group identifier identifying the group of media streams; and

the payload of each of the packets; and

communicating the group packet to a second network device.

12. The logic of Claim 11, wherein:

each of the media streams is synchronous; and

the logic is further operable to perform the step of identifying the group of media stream by determining that the media streams in the group have the same periodicity.

13. The logic of Claim 11, wherein the logic is further operable to perform the steps of:

generating a group setup message, the group setup message comprising:

the group identifier; and

state information for each media stream in the group; and

communicating the group setup message to the second network device.

14. The logic of Claim 13, wherein the state information enables the second network device to:

reconstruct the headers corresponding to the payloads in the group packet; and

reform the corresponding packets from the reconstructed headers and the corresponding payloads.

15. The logic of Claim 14, wherein:

the packets are Internet protocol (IP) packets carried over User Datagram Protocol (UDP);

the method further comprises compressing each packet into a compressed UDP (cUDP) packet comprising the payload of each packet and a compressed header; and

the state information permits the second network device to reconstruct the compressed headers.

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16. A system for compressing packets, comprising:

means for receiving, at a first network device, a plurality of packets, each packet from a separate one of a group of media streams, each packet comprising a payload and a header;

means for generating a group packet, the group packet comprising:

a group identifier identifying the group of media streams; and

the payload of each of the packets; and

means for communicating the group packet to a second network device.

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17. A method for decompressing packets, comprising:

receiving a group setup message, the group setup message comprising:

a group identifier associated with a group of media streams, each stream comprising a plurality of media packets, each media packet comprising a header and a payload; and

state information for each media stream;

receiving a group packet, the group packet comprising:

the group identifier; and

the payload of one media packet from each media stream in the group; and

for each payload in the group packet:

reconstructing a header for the payload based on the state information for the corresponding media stream; and

combining the reconstructed header with the corresponding payload from the group packet to form a reconstructed media packet.

18. The method of Claim 17, wherein the step of reconstructing the header comprises:

determining a first portion of the header based on the state information;

determining a second portion of the header by applying decompression to the first portion of the header; and

reconstructing the header from the first and second portions of the header.

19. The method of Claim 17, wherein:

the media packets are Internet protocol (IP) packets;

the first portion of the header is a compressed User Datagram Protocol (cUDP) header; and

the second portion of the header is determined using cUDP decompression.

20. The method of Claim 17, wherein the group packet includes the group setup message.

21. The method of Claim 17, further comprising replying to the group setup message with an acknowledgement, the acknowledgement comprising:

the group identifier; and

an identifier for each media stream in the group

22. The method of Claim 17, further comprising:

receiving updated state information for one or more of the media streams; and

updating the corresponding state information.

23. A communication device, comprising:

a memory operable to store a group identifier associated with a group of media streams and further operable to store state information about each media stream, each media stream comprising a plurality of media packets, each media packet comprising a header and a payload;

an interface operable to receive a group packet, the group packet comprising:

the group identifier; and

a payload from one media packet from each media stream; and

a processor operable to:

reconstruct a header corresponding to each payload in the group packet using the state information; and

reconstruct the media packets from the corresponding headers and payloads.

24. The communication device of Claim 23, wherein reconstructing the header comprises:

determining a first portion of the header based on the state information;

determining a second portion of the header by applying decompression to the first portion of the header; and

reconstructing the header from the first and second portions of the header.

25. The communication device of Claim 24, wherein:

the media packets are Internet protocol (IP) packets;

the first portion of the header is a compressed User Datagram Protocol (cUDP) header; and

the second portion of the header is determined using cUDP decompression.

26. The communication device of Claim 23, wherein the group packet further comprises:

the group identifier; and

the state information for the media streams.

27. The communication device of Claim 23, wherein the interface is further operable to receive a group setup message comprising the group identifier and the state information for the media streams.

28. The communication device of Claim 27, wherein:

the processor is further operable to generate an acknowledgement, the acknowledgement comprising:

the group identifier; and

an identifier for each media stream in the group; and

the interface is further operable to communicate the acknowledgement to a network device that sent the group setup message.

29. The communication device of Claim 23, wherein:

the interface is further operable to receive updated state information for one or more of the media streams; and

the processor is further operable to update the corresponding state information.

30. Logic embodied in a computer readable medium operable to perform the steps of:

receiving a group setup message, the group setup message comprising:

a group identifier associated with a group of media streams, each media stream comprising a plurality of media packets, each media packet comprising a header and a payload; and

state information for each media stream;

receiving a group packet comprising:

the group identifier; and

the payload of one media packet from each media stream in the group; and

for each payload in the group packet:

reconstructing a header for the payload based on the state information for the corresponding media stream; and

combining the reconstructed header with the corresponding payload from the group packet to form a reconstructed media packet.

31. The logic of Claim 30, wherein the step of reconstructing the header comprises:

determining a first portion of the header based on the state information;

determining a second portion of the header by applying decompression to the first portion of the header; and

reconstructing the header from the first and second portions of the header.

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32. The logic of Claim 31, wherein:

the media packets are Internet protocol (IP) packets;

the first portion of the header is a compressed User Datagram Protocol (cUDP) header; and

the second portion of the header is determined using cUDP decompression.

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33. A system for decompressing packets, comprising:

means for receiving a group setup message comprising:

a group identifier associated with a group of media streams, each stream comprising a plurality of media packets, each media packet comprising a header and a payload; and

state information for each media stream;

means for receiving a group packet, the group packet comprising:

the group identifier; and

the payload of one media packet from each media stream in the group; and

means for reconstructing a header for the payload based on the state information for the corresponding media stream for each payload in the group packet; and

means for combining the reconstructed header with the corresponding payload from the group packet to form a reconstructed media packet for each payload in the group packet.